# Business & Enterprise Systems

***Integrity - Service - Excellence***

## AF Systems Engineering Assessment Model (AF SEAM)

## Validation Assessment Out-Brief

## Program: (INSERT NAME)

***Current: 14 January 2015***

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# Overview

- AF SEAM Overview and History
- AF SEAM Goals
- Policy
- AF SEAM Practices and Composition
- Validation Assessment Overview
- Validation Assessment Scoring and Summaries
- Validation Assessment Results

# What is AF SEAM?

- **Overview**
  - **Single AF-wide *process improvement tool* used for the assessment and improvement of systems engineering processes in a project or across an organization**
  - **Composite of industry and DoD best practices**
  - **Promotes consistent understanding/application of SE**
  - **Facilitates a gap analysis of an organization's SE processes**

- **History**
  - **Baseline released (August 2008) – Version 1.0**
  - **Became policy with AFMCI 63-1201 (October 2009)**
  - **Update released (September 2010) – Version 2.0**

# Why We Need AF SEAM

- **Lack of disciplined system engineering application has been a major contributor to poor program performance**

- **Many problems have surfaced repeatedly with AF programs**
  - **Poor requirements development and management**
  - **Poor planning fundamentals**
  - **Lack of integrated risk and issue management**
  - **Lack of rigorous process application**
  - **Failure to deliver mission capabilities**

# AF SEAM Goals

- **Ensure a consistent understanding of systems engineering**
- **Ensure core SE processes are in place and being practiced at the *program/project* level**
- **Document repeatable SE "Best Practices" across AF**
- **Identify opportunities for continuous Improvement**
- **Clarify roles and responsibilities**
- **Improve program performance & reduce risk**
- **AF SEAM is NOT an appraisal of product quality**
- **AF SEAM is NOT a report card on personnel or the**

*The **Validation Assessment** has a further goal of providing an independent "audit" of process and practice usage with the additional intent of continuous process improvement*

# AFMC Policy

- **AFMCI 63-1201, *Implementing OSS&E and Life Cycle Systems Engineering*, Change 2 (11 February 2011)**
  - *"Programs listed in the Air Force Systems Information Library (AFSIL) shall use AF SEAM as a self assessment tool to evaluate the organization's capability to perform SE processes. AF SEAM assessments shall be conducted annually." (Para 1.6)*
  - *"Organizations are encouraged to assess their programs managed under common processes within a single assessment. The assessment of common programs shall be at the organizational Division level or lower." (Para 1.6)*

# BES Directorate Policy

- **AF PEO BES Policy:**
  - *ALL programs required to build a Business Process Directory (BPD) Tailoring Worksheet (TWS) shall complete AF SEAM Self-Assessment annually*
    - *FoS / SoS: If consolidated under a single TWS, perform a single AF SEAM Self-Assessment*
    - *Includes all ACAT and sustainment programs*
  - *Validation Assessments*
    - *All ACAT I/II/III programs will be subject to validation assessments*
    - *Other programs will be selected for validation assessments by the Director of Engineering (DoE)*

# AF SEAM Pedigree

- **AF SEAM Foundation:**
  - **Capability Maturity Model Integration (CMMI®)**
  - **Defense Acquisition Guidebook (DAG)**
  - **AFI 63-1201 – *Life Cycle Systems Engineering***
  - **ANSI/EIA 632 – *Processes for Engineering a System***
  - **IEEE/EIA 731 – *Systems Engineering Capability Model***
  - **ISO/IEEE 15288 – *Systems Engineering-System Life Cycle Processes***
  - **INCOSE – *System Engineering Standards***
  - **IEEE 1220 – *Application and Management of the Systems Engineering Process***

# AF SEAM Practices

- **Specific Practices**
  - **Unique to each process area**
  - **Informative Material**
    - **Description**
    - **Typical Work Products**
    - **Other Considerations**
    - **References**
    - **Local References**

- **Generic Practices**
  - **Same questions apply to all process areas**
  - **Informative Material**
    - **Description**
    - **Typical Work Products**
  - **Facilitates successful achievement of specific practices and process area goals**

# AF SEAM Practice Composition

| Process Areas | Goals | Specific Practices | Generic Practices | Total Practices |
|---|---|---|---|---|
| Configuration Management (CM) | 3 | 8 | 7 | 15 |
| Decision Analysis (DA) | 1 | 5 | 7 | 12 |
| Design (D) | 3 | 14 | 7 | 21 |
| Manufacturing (M) | 4 | 12 | 7 | 19 |
| Project Planning (PP) | 3 | 15 | 7 | 22 |
| Requirements (R) | 4 | 13 | 7 | 20 |
| Risk Management (RM) | 3 | 7 | 7 | 14 |
| Transition, Fielding & Sustainment (TFS) | 4 | 15 | 7 | 22 |
| Tech Mgmt & Control (TMC) | 4 | 15 | 7 | 22 |
| V & V (V) | 5 | 16 | 7 | 23 |
| IA SE Integration (IA) | 4 | 10 | 7 | 17 |
| *Totals:* | *38* | *130* | *77* | *207* |

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# Validation Assessment Overview

- **An AF SEAM Validation Assessment is an *independent assessment* of a project's/program's self–assessed implementation of SE practices, processes and procedures**
- **Who's involved**
  - **The Validation Assessment Team – led by the BPD CCB; includes matrixed process area SMEs *independent* of the program office**
  - **Project/Program Office Team**
  - **Prime Contractor Team (as appropriate)**
- **The Validation Assessment is an opportunity to:**
  - **Ensure existence of disciplined systems engineering processes; validate project/program office demonstrated ability to execute processes**
  - **Identify strengths / best practices exercised by programs/projects**
  - **Identify opportunities for program/project or process improvement**

# Scoring Methodology

- **Same methodology as Self-Assessment**
- **Compared project/program processes (how you do things) to the practice (a process standard, or what should be done) and answered…**
  - **(1) = YES – if your process completely satisfied the practice**
  - **(0) = NO – if your process did not satisfy or partially satisfied the practice**
  - **N/A – if the practice did not apply either by uniqueness of the program, timing, or other circumstances**

# Documenting Findings…

- **Validation Team made honest assessments of each practice**
  - **All findings were discussed before final entries were recorded**
- **Practices were only scored YES if the project/program fully complies with the practice**
- **If a practice partially met and there is an opportunity to improve, it was scored as NO and explained**
  - **Any practice scored as NO should be translated into a program risk**
- **All findings were adjudicated and agreed upon before preparing this briefing and the final assessment report**

# Specific Practices Summary

INSERT VALIDATION ASSESSMENT SPECIFIC PRACTICES SUMMARY TABLE FROM THE AFSAT TOOL

# Generic Practices Summary

INSERT VALIDATION ASSESSMENT GENERIC PRACTICES SUMMARY TABLE FROM THE AFSAT TOOL

# Combined Summary

## INSERT VALIDATION ASSESSMENT COMBINED SUMMARY TABLE FROM THE AFSAT TOOL

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# Specific Practice Results

**Configuration Management:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Configuration Management is to establish and maintain the integrity of the product's technical baseline while accommodating change and providing a clear, concise, and valid description of the product to concerned parties. There were 3 Process Goals assessed which were broken down into 8 Specific Practices and 7 Generic Practices. A total of 15 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Decision Analysis:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Decision Analysis is to analyze possible decisions using a formal process that evaluates identified alternatives against established criteria. There was 1 Process Goal assessed which was broken down into 5 Specific Practices and 7 Generic Practices. A total of 12 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Design:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Design is to conceive and proof an integrated solution that satisfies product requirements. There were 3 Process Goals assessed which were broken down into 14 Specific Practices and 7 Generic Practices. A total of 21 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Information Assurance & Systems Engineering Integration:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of the Information Assurance (IA) process area is to ensure that acquisition program offices include IA requirements as part of the mainstream DAS requirements process and follow standard Systems Engineering (SE) practices to ensure compliance with DoD 8500 series directives. There were 4 Process Goals assessed which were broken down into 9 Specific Practices and 7 Generic Practices. A total of 16 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

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# Specific Practice Results (Cont'd)

**Manufacturing:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of the Manufacturing process is to prepare for and produce the required product. There were 4 Process Goals assessed which were broken down into 12 Specific Practices and 7 Generic Practices. A total of 19 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Project Planning:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Project Planning is to establish and maintain plans that define project activities. There were 3 Process Goals assessed which were broken down into 15 Specific Practices and 7 Generic Practices. A total of 22 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

**Requirements:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of the Requirements process area is to develop and analyze operational user, product, and product-component requirements, to assure consistency between those requirements and the project's technical plans and work products and to manage requirements evolution through the life cycle of the product. There were 4 Process Goals assessed which were broken down into 13 Specific Practices and 7 Generic Practices. A total of 20 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Risk Management:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Risk Management is to identify potential problems before they occur, so that risk-handling activities may be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives. There were 3 Process Goals assessed which were broken down into 7 Specific Practices and 7 Generic Practices. A total of 14 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

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# Specific Practice Results (Cont'd)

**Transition, Fielding, and Sustainment:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of the Transition, Fielding & Sustainment process is to prepare for and execute the support, maintenance, repair, and disposal of a product while ensuring it is safe, suitable, and effective while it is fielded and operated. Sustainment is the planning, programming, and executing of a support strategy. It includes specific activities in all phases of a product lifecycle from product concept formulation to demilitarization and disposal. There were 4 Process Goals assessed which were broken down into 15 Specific Practices and 7 Generic Practices. A total of 22 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

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# Specific Practice Results (Cont'd)

**Technical Management and Control:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Technical Management and Control is to provide an understanding of the program's technical progress so that appropriate corrective actions can be taken when the program's performance deviates significantly from the plan. There were 4 Process Goals assessed which were broken down into 15 Specific Practices and 7 Generic Practices. A total of 22 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Specific Practice Results (Cont'd)

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**Verification and Validation:**

**Validation Assessment Rating: (Enter the rating from AFSAT) 100%**

**Self Assessment Rating: (Enter the rating from AFSAT) 100%**

**Description: The purpose of Verification is to ensure that work products meet their specified requirements. The purpose of Validation is to demonstrate that a product or product component fulfills its intended use when placed in its intended environment. There were 4 Process Goals assessed which were broken down into 10 Specific Practices and 7 Generic Practices. A total of 17 practices were addressed within this process area.**

**Assessor Comments:**

- **Enter assessor comments for this Process Area.**

**Strengths:**

- **Enter strengths or "None identified".**

**Improvement Opportunities:**

- **Enter improvement opportunities or "None identified".**

**Recommendations:**

- **Enter recommendations or "None identified".**

# Consolidated Strengths and Improvement Opportunities

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**INSERT VALIDATION ASSESSMENT CONSOLIDATED STRENGTHS AND IMPROVEMENT OPPORTUNITIES TABLE FROM THE AFSAT TOOL**

# Validation Assessment Reporting

- **Program results briefed to Division Leadership and Director of Engineering (DoE) only**
  - **Division Director and DoE should determine if the results require briefing to the BES Directorate Leadership**
- **Final Validation Assessment Report will be prepared and distributed to the Program Office and Division leadership**
- **BPD CCB will use Program Validation Assessment raw data to compile BES Directorate statistics (overall organizational health)**
  - **Identify systemic and organizational strengths / improvement opportunities**
  - **Analyze implement organizational process changes necessary**
  - **Brief BES Directorate Leadership on organizational results/trends**

# Summary

**EXECUTIVE SUMMARY: The overall validation assessment of (Program Name) shows that the program team is/is not following well structured systems engineering processes throughout the lifecycle of the program. The overall rating average was NN% indicating the (Program Name) program has a (high, moderate, or low) degree of implementation of the standard SE processes addressed in the AF SEAM and the BES Process directory (BPD).**

- **Closing Remarks?**